

# MONTHLY NOTICES

OF THE

## ROYAL ASTRONOMICAL SOCIETY.

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No. 6

E. B. KNOBEL, Esq., PRESIDENT, in the Chair.

The following candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended :—

Alexander Foote, F.S.A. Scot., Mall Park, Montrose, Scotland ; and 1111 Warwick Road, Earl's Court, S.W. (proposed by A. Fowler).

Désiré Ernest Lebon, Agrégé de l'Université, Professeur de mathématiques au Lycée Charlemagne, 4 bis, rue des Ecoles, Paris (proposed by C. Flammarion).

One hundred and fifteen presents were announced as having been received since the last meeting, including amongst others :—

Al Battani, *Opus Astronomicum*, presented by the Milan Observatory ; Astronomical and Astrophysical Society of America, First meeting, presented by the Society ; Th. Brédikhine, *Sur les radiants composés (dits stationnaires) des étoiles filantes*, presented by the author ; Galileo, *Opera*, vol. 8, presented by the Italian Government ; Sir William and Lady Huggins, *Atlas of representative stellar spectra*, presented by the author ; Rev. S. Kinns, 'Six Hundred Years,' presented by the author ; Königsberg Observatory, *Beobachtungen*, Abth. 18, 19, presented by the Observatory ; F. X. Kugler, *Die Babylonische Mondrechnung*, presented by the author ; W. T. Lynn, *Remarkable*

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Comets, 7th edition, and Remarkable Eclipses, 4th edition, presented by the author ; L. Weinek, Photographischer Mond-Atlas, Heft 4-6, presented by Professor Weinek ; E. T. Whittaker, Report on the progress of the solution of the problem of three bodies, presented by the author ; Bronze copy of the Stokes Jubilee Medal, presented by the University of Cambridge.

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*On the Binary System of Capella.* By H. F. Newall.

A very brief announcement of the discovery of the binary character of *Capella* was made in a note communicated to the Society in 1899 November (*ante*, p. 2). A similar announcement was made by Professor Campbell, of the Lick Observatory, in the October number of the *Astrophysical Journal* (vol. x, p. 177). Two brief communications have been made to the Observatory (1900 February, pp. 92, 93). The object of the present note is to lay before the Society the result of a preliminary investigation of the photographs of the spectrum of *Capella* which have been obtained at Cambridge.

A new four-prism spectroscope was attached to the 25-inch equatorial in 1899 July. Some of the earliest photographs obtained with it were spectra of *Capella* ; and it was at once noticed that the definition appeared poor and unsatisfactory. From night to night it varied in a curious manner ; and it became clear that the peculiarities were real, and not due to instrumental defects, for excellent photographs were obtained of the spectra of other stars—notably of *Procyon* and *Sirius*.

After a preliminary study of ten or twelve photographs of the spectrum of *Capella*, it seemed clear that the spectrum was composite, and lines were picked out as belonging to one component, which we will call the solar component, and other lines as belonging to another component, which in the short range of spectrum dealt with has the characteristics of the spectrum of *Procyon* and  $\gamma$  *Cygni* and  $\alpha$  *Persei* ; it will be convenient to refer to it in what follows as the *Procyon* component. It is difficult to make out the spectrum ; and I think it not unlikely that this choice of name may require revision.

Measurements were then made in the short range of spectrum  $\lambda\lambda$  4250-4325 ; and the results in the case of the solar component are given in the following table, and are plotted in the accompanying plate ; ordinates representing the velocity of that component relative to the Sun, with time as abscissa. The curve drawn through the observations is a sine curve, to which further reference will be made below. In the table the first column contains the plate number, the second the date, the third the duration of exposure, the fourth the velocity deduced from the photograph (*i.e.* the velocity relative to Earth), the fifth the